ABSTRACT

The invention provides efficient methods of isolating specific nucleic acid targets to obtain information from target nucleic acid sequences in a relatively short time period. DNA or cDNA is enzymatically digested into smaller fragments, double-stranded DNA linkers are added onto the ends of the DNA fragments to flank each fragment with a known DNA sequence. The fragments are mixed with an oligonucleotide probe that is bound to a marker and contains a conserved nucleic acid sequence of interest. The fragments that hybridize to the probe through nucleotide base pair complementation become indirectly connected to the marker. These target fragments are captured using a capture agent that specifically recognizes the marker and treated to prevent non-specific binding. Captured fragments are typically cloned prior to sequencing. The captured fragments may also be amplified using PCR to increase the efficiency of the cloning.